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NSDD Partnership

Working Together to Prevent Nuclear Trafficking

The Office of Nuclear Smuggling Detection and Deterrence

Testing and Evaluation

NSDD RID Test, Design, and Relevance

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Roadmap

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- Overview of testing types
- Relevance to current initiatives
- Overview of NSDD Radioisotope Identification Device (RID) Test

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Purposes of Testing & Evaluation

- Objective assessment of technology
- Assure acceptable performance
- Inform cost-effective decisions
- Build collective confidence
- Identify weaknesses or vulnerabilities (a good thing)

Types of Testing and Evaluation (T&E)

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Defining Criteria (Example)

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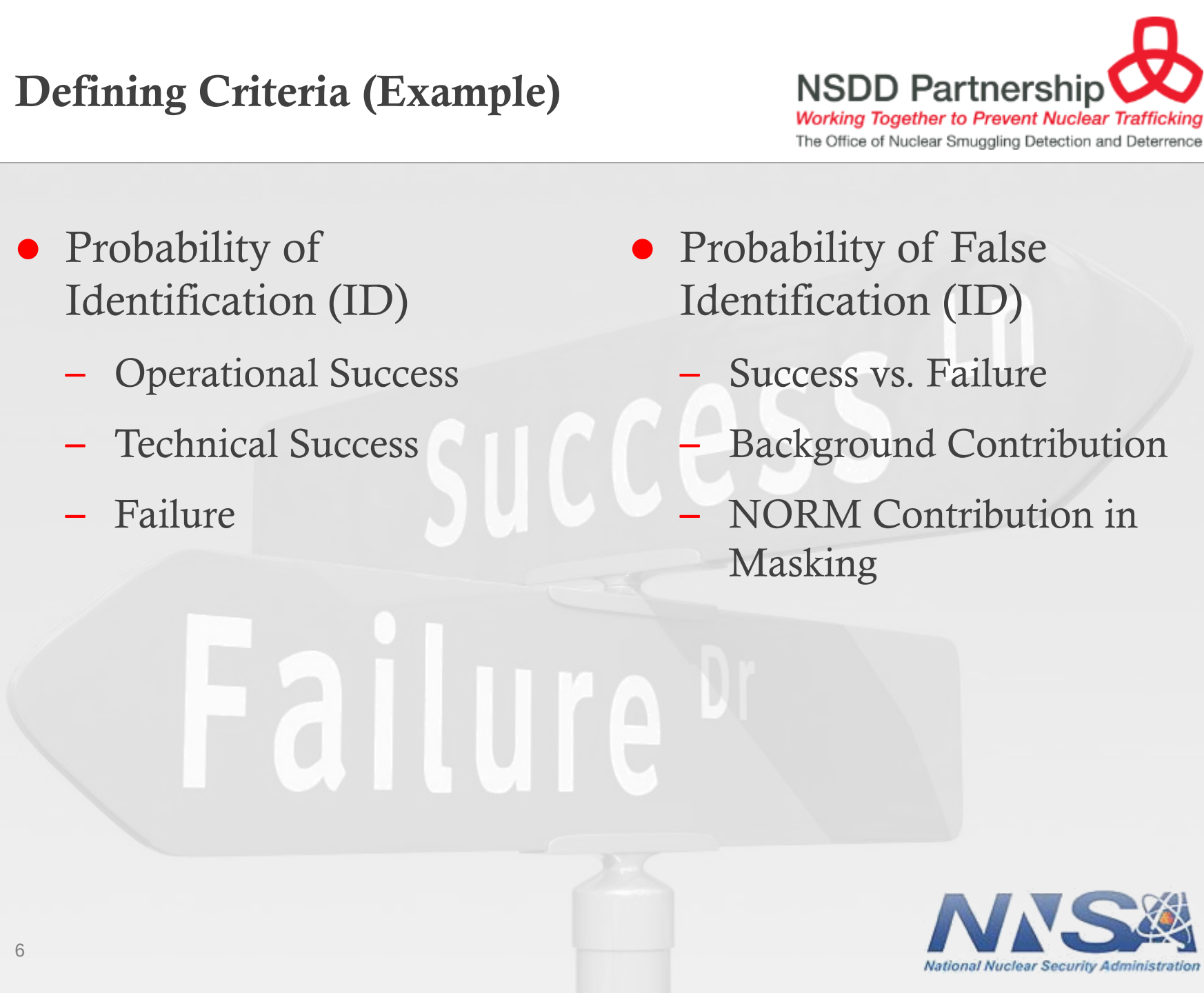
- Probability of Identification (ID)
  - Operational Success
  - Technical Success
  - Failure
- Probability of False Identification (ID)
  - Success vs. Failure
  - Background Contribution
  - NORM Contribution in Masking



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Overview of NSDD RID Test

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- Baseline Performance Survey of RIDs
- Collect Data for
  - Modeling
  - Performance Characterization
- Meet Objectives within Limitations

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Logistics of NSDD RID Test

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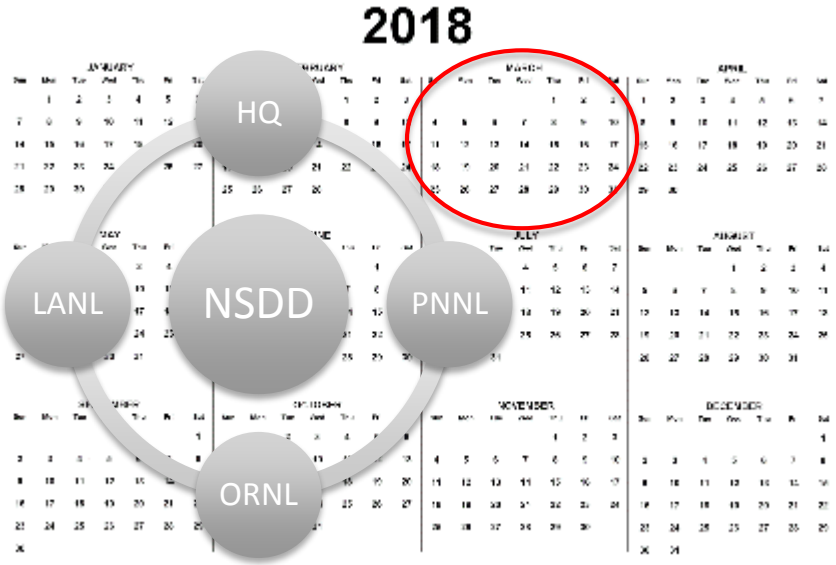
- Various RID systems
- 4 weeks of testing
- 11 people; 4 institutions
- 4 Scenarios probing different characteristics



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Test Scenarios for NSDD RID Test

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- A: Modeling Characterization Measurements
- B: Probability of False ID in Background
- C: Performance Characterization in Low-NORM (Naturally Occurring Radioactive Material) Fields

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Test Scenarios for NSDD RID Test

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- A: Modeling Characterization Measurements
- B: Probability of False ID in Background
- C: Performance Characterization in Low-NORM Fields
- D: Probability of ID
  - As a function of Flux
  - As a function of ID Time




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"Quick Look" at NSDD RID Test

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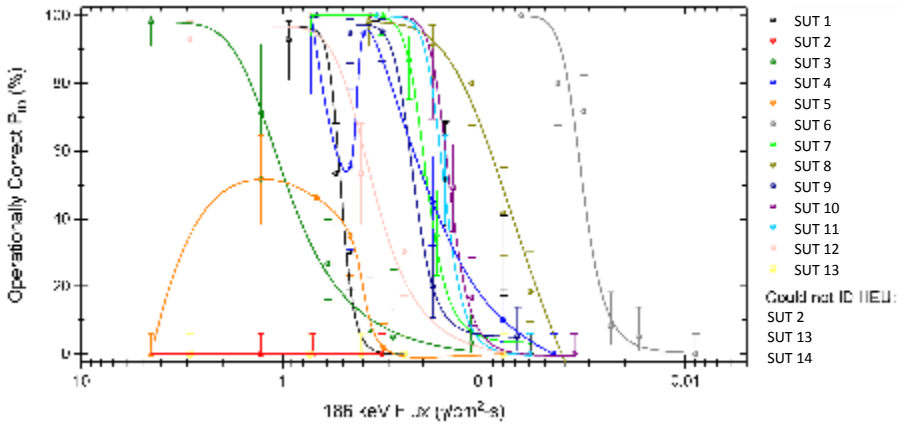
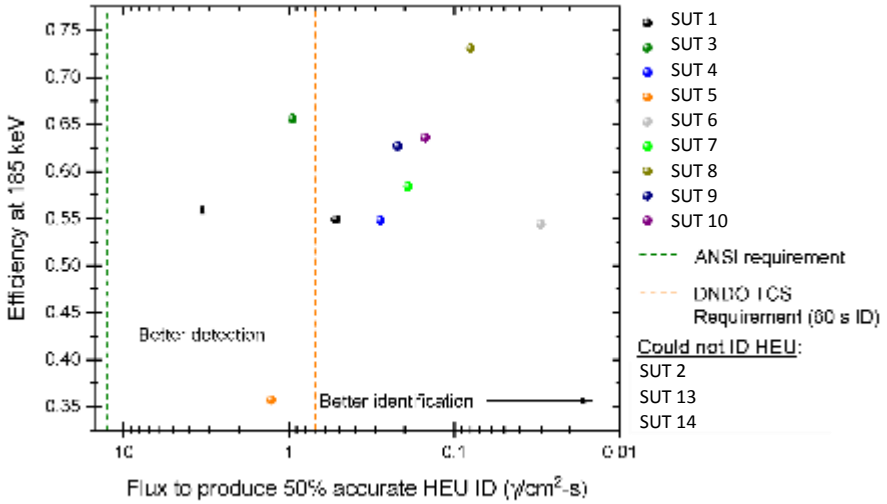
- 25 Test Cases Run, >8600 Total Trials for each of 14 RIDs
- Challenges and Lessons Learned
- Baseline characteristics vs. evaluation against requirements
  - Criteria review





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"First Look" at BMWG Test

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- Limited Characterization Study
  - Based on NSDD RID Test Methodology
- Baseline Characteristics of RID(s)
- Collect data and exercise methodology
- Limitations on time, instrumentation


Hand-Held


Shoulder Strap


Tripod

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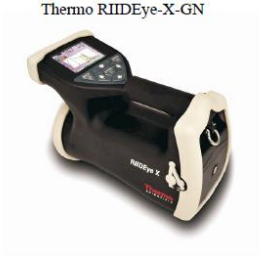
Conclusions

- Various Types of Testing
- Defining Criteria is Key
- Experience with
  - Data Collection
  - Characterization Tests
- Testing with Requirements Informs Decisions

Thermo RIIDEye-X-GN



Smiths Detection Radseeker CS

Symetrica Verifinder-SN23

BNC SAM 950-GN-N30

Radiation Solutions Inc. SR-10

Ortec Detective X

NucTech RM0100NH

Aspect MKC A03

AtomTex AT6102

Ortec RadEagle-3SG-H

Polimaster PM1410

FLIR identiFINDER R500-NG

FLIR identiFINDER R400-NG

AISense Gamma 4

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Thank you for your attention.

Questions?

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